

Appl. No. 10/071,678
Reply to Office action of April 12, 2005

REMARKS

The Applicants and their attorney thank Examiner Goff for the interview of June 22, 2005. As noted in the Interview Summary:

Examiner and applicants' representative discussed proposed amendments to the claims regarding amending the claims to require for example 'the gripping jaws being disposed laterally from each other along an axis perpendicular to the elongated support surface'. The examiner agreed an amendment of this type to require (at least) two gripping mechanisms disposed laterally from each other perpendicular to the direction of travel of the sheets would appear to overcome the prior art of record.

Applicants have amended the claims in accordance with the substance of the interview. Apparatus claims 1-7, 18-19, 20-24, 26 and 33-39 are presently pending. Claims 1, 7 and 18 are independent claims. Dependent claims 33-39 all ultimately depend from claim 7 and are new. In view of the fact that all of the independent claims at least require that the gripping mechanisms are laterally disposed from each other, the independent claims overcome the art of record and should be passed to issue.

The Rejections

The Examiner rejected claims 1-5 and 7 under section 102(b) based upon Andre and under section 103 based upon Andre in view of Burger, Muller or Eberle.

The Examiner rejected claim 6 under section 103 based upon Andre and in view of Burger, Muller or Eberle.

The Examiner rejected claims 18-23, 24, 25 and 26 under section 103 based upon Andre and in view of Burger, Muller or Eberle and further in view of USPN 4,061,521 to Lerner et al.

The Operation Of And The Problems Solved By Applicant's Apparatus

This invention is directed to the application of color swatches to base sheets where the sheets are used for the illustration of color. The product of the apparatus are color cards which the consumer often sees in the selection of paint color.

Current machinery to make these products is high speed. Feed fingers push base sheets through stations where adhesive and swatches are applied to the base sheets. As noted in the specification, however, the prior art machinery has had problems with misaligned sheet and sheets which have their leading downstream edge float or lift as the

Appl. No. 10/071,678
Reply to Office action of April 12, 2005

sheet travels downstream through various adhesive and swatch applying stations. The specification states in part:

The feed fingers that push the sheets along the travel surfaces are attached to conveyors in the form of drive chains. Separate drive chain conveyors extend between each of the operating stations so that several sets of feed fingers will have pushed the sheets during their travel from the infeed to the outfeed of the sheets from the machine. The use of multiple sets of conveyers and multiple sets of feed fingers to push each sheet to and from each operating station requires precise coordination of the timing of the positions of each set of feed fingers on each conveyor to push the sheet through the operating stations, particularly where operating speed is maximized. Page 2, lines 1-13 of the specification.

* * * *

The feed fingers do not positively grip the sheets. As there is no positive gripping, the feed fingers extend a relatively high distance above the travel surfaces to ensure that they contact the rearward edge of the sheets as occasionally the sheets will not be lying flat on the travel surfaces such as if the rearward edge of the sheet curls.

Because of the height that the feed fingers extend above the travel surfaces and the lack of positive gripping of the sheets, the feed fingers are not able to push the sheets through the stations. More specifically, upper and lower rollers cooperate to form nips of the operating stations into which the sheets are fed and from which they are discharged. In the nips, adhesive and swatches are applied to the sheets. The height of the feed fingers does not allow for their passage through the nip areas between the closely spaced rollers of the operating stations.

Accordingly, instead of using a single set of feed fingers to push the sheets through each operating station, a separate set of feed fingers pushes each of the sheets to each station. The nip formed by the rollers in each station draw the sheets therethrough and discharges them downstream to the next conveyor at which point another set of feed fingers then pushes the sheets to the next station. The timing of the multiple sets of feed fingers must be coordinated so that as a sheet leaves a station a new set of feed fingers are positioned to push the sheet to the next station. If the timing is not correctly coordinated, misfeeds may occur. Misfeeds are undesirable because the swatch applying machinery must be stopped while the misfed sheet or sheets are removed and the machinery reset for continued operation. Page 2, line 23 to page 3, line 20 of the specification.

Sheet float causes misalignments and limits the speed of a machine. As noted in the specification:

As sheets are fed through the swatch applying machinery at higher speeds, the sheets have a tendency to float above the travel surfaces. At higher speeds, the front or leading edge of the sheet tends to lift up, allowing air to flow underneath the sheet. The result is a sheet that is partially floating on air. The faster the swatch applying machinery is run, i.e., the more sheets per hour fed through the machine, the greater the tendency for the sheets to float. The problem of sheet float is particularly acute when lighter sheet stocks are used. The use of lighter sheet stock

Appl. No. 10/071,678
Reply to Office action of April 12, 2005

tends to increase the tendency for the sheets to lift up from the travel surfaces because the sheets do not have sufficient weight to maintain themselves in a planar alignment and against the travel surfaces. When sheets float, there are increased occurrences of misfeeds and misprints. Floating sheets tend to deviate from their preferred alignment, even with the assistance of the side sheet guides associated with the travel surfaces. The corners of floating sheets tend to catch on various parts of the swatch applying machinery, causing the sheets to become misaligned. Page 3, line 35 to page 4, line 21 of the specification.

The References

1. Andre

As discussed at the interview, Andre discloses an apparatus for attaching painted paper strips 4, 5 and 6 to a support sheet 3. Andre's grippers are not laterally disposed from each other along an axis perpendicular to the direction of downstream advancement of the sheet. Andre's sheets are gripped by clamps 8b on a lateral side of the sheet, *i.e.*, an edge which is not downstream, and are moved laterally onto a transfer table 7 via a conveyor 8. Andre's grippers are on the side of the sheets and while they move the sheets downstream, they do not move under any work stations and do not move under any work station. Andre can have a sheet float problem at high speeds and may not be able to substantially maintain the leading edge of the sheet in a generally constant orientation due to air flow beneath the sheet and a lack of a grip on the leading edge of the sheet. Hence the problem of float and misalignment are not even recognized, let alone solved with grippers gripping a downstream edge of a sheet to keep the sheet from floating and being misaligned.

In contrast, each of the claimed apparatus recite mechanisms or members for pulling their sheets by a downstream edge of the sheets to avoid misalignment and float. Moreover, in an important aspect multiple grippers releasing and grabbing sheets after each station also is avoided because the grippers travel under and through a work station without the problem of releasing and grabbing the sheet multiple times.

2. Burger, Muller And Eberle

Burger, Muller or Eberle disclose pulling sheets through stations. Burger, Muller and Eberle are not properly combinable with Andre. Moreover, no motivation is provided for their proposed combination.

Burger merely discloses one set of gripping jaws that do not go under or through a work station where items are applied to a sheet. With one set of jaws Burger does not solve

Appl. No. 10/071,678
Reply to Office action of April 12, 2005

a float problem. Burger merely has a gripper mechanism for transferring sheets between stations, as opposed to through stations as in the presently claimed apparatus. For example, Burger discloses the gripping of a sheet after emerging from a printing station. (Col. 3, ll. 52-59.) Burger further describes a use of its gripping mechanisms "in the form of an inverter apparatus 50 of a sheet feeder and inverter apparatus between two printing machines 3, 5..." (Col. 4, ll. 10-12.) Burger uses his one set of gripping jaws to invert sheets, and in doing so grips the sheets in a rotary motion and does not move the sheets in a plane between work stations while continuously gripping the downstream edge of the sheet.

Muller's grippers would be totally useless for transporting sheets for the application of swatches. Muller grippers hold sheets perpendicular from the plane in which the chain which holds the grippers travels. Hence the paper sheets are held in a configuration which where the surface of the sheet would not be disposed in a plane where it could receive adhesive or the application of swatches. Float is not a problem and is something that would have to be addressed or solved. The object of the Muller apparatus is to simply transport sheets between a source of stacked sheets and a receiving station for individual sheets. (See col. 1, ll. 55-59.)

Eberle's grippers are irrelevant to solving the problems addressed by applicant's invention for the same reasons as Muller's grippers are irrelevant and useless for transporting sheets for the application of swatches. Eberle's grippers are moved on a chain drive where the edge of the sheets are gripped in such a way that the planes formed by the sheets is perpendicular to the chain. Eberle discloses that printed products 12, 14 are delivered to the gripper elements 18 (col. 5, ll. 52-54), as opposed to the gripper elements directing the products through printing stations. Nowhere do Muller or Eberle disclose that their apparatus can be used to pull sheets through various stations which are to operate on the sheet by placing something thereon.

The References Are Not Combinable

Andre grips sheets on a lateral edge and moves them downstream where color strips are applied to the surface of the sheets with vacuum suckers. The grippers move the sheet in a plane of the transfer table 7 which supports the sheet during mounting operations. The grippers of Muller and Eberle do not combine with Andre, indeed, they would be useless to Andre because Muller's and Eberle's gripping jaws would hold the sheets perpendicular to

Appl. No. 10/071,678
Reply to Office action of April 12, 2005

the plane of the transfer table and make mounting operations impossible.

Burger's single set of gripping jaws are opened and closed at the same roller because the sheet has been inverted and brought back to its starting point at roller 52. The entire point of Burger is to invert a sheet and deposit it onto another conveyor, not to transport sheets through work stations. Andre would not have looked to Burger's rotating gripper to transport the sheets downstream under the depositing vacuum suckers.

The Claims Are Not Anticipated Or Obvious

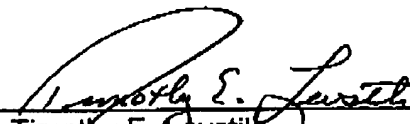
No reference either alone or in combination suggests an apparatus which has gripping jaws which are laterally disposed from each other in a direction which is perpendicular to the downstream advancement of the sheet and which open facing upstream for pulling a downstream edge of a sheet downstream through workstations. No reference either alone or in combination suggests an apparatus which has gripping jaws which open facing upstream and which pull a flat sheet from a downstream edge in the same plane formed by the flat sheet over a flat support surface and under work stations in a downstream direction.

For the reasons set forth above, the Applicants respectfully requests reconsideration and allowance of the pending claims. Please charge any fees required by this amendment to Deposit Account No. 06-1135.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

By:


Timothy E. Levstik
Registration No. 30,192

Date: July 14, 2005
FITCH, EVEN, TABIN & FLANNERY
120 S. LaSalle St., Suite 1600
Chicago, Illinois 60603
Telephone: (312) 577-7000
Facsimile: (312) 577-7007